



# UNITED STATES PATENT AND TRADEMARK OFFICE

W.A  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,385	10/06/2004	Pierre-Olivier Lefort	62790(4590-340)	6495
33308	7590	03/02/2007	EXAMINER	
LOWE HAUPTMAN GILMAN & BERNER, LLP			NGUYEN, THANH T	
1700 DIAGNOSTIC ROAD, SUITE 300			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			2813	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/02/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/510,385	LEFORT ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thanh T. Nguyen	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 20 November 2006.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.  
 4a) Of the above claim(s) 12-18 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-11 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date: _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>10/6/04</u>	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of group I, claims 1-11 in the reply filed on 11/20/06 is acknowledged. The traversal is on the ground(s) that there is an undue burden on the examiner involved with the examination of Group II claims. This is not found persuasive because method and product are statutorily distinct categories of invention, and the particular method claimed is distinct from the particular product claimed because there is an alternative method of making the device. Therefore, there is no reason why a search for the method must include a search for the device as well. The existence of an alternative method of making the device, as well as the different classification of two inventions, provide evidence of a burden on the examiner in examining both inventions.

Distinctness between a process of making and the product made is shown if the product as claimed can be made by another materially different process. MPEP&#806.05(f). In the restriction requirement, the examiner set forth several Amaterially different processes by which the claimed product could be made.

A serious burden on the examiner is shown according to the criteria of MPEP&#808.02, where one of the following must be supported by appropriate explanation:

1. Separate classification thereof:

This shows that each distinct subject has attained recognition in the art as a separate subject for inventive effort, and also a separate field of search,. Patents need not be cited to show separate classification.

2. A separate status in the art when they are classifiable together;....
3. A different field of search....

In the restriction requirement, the examiner set forth separate classification for the two inventions to which claims were presented. Classification of the device claims in class 257. Classification of the process claims is in class 438. Applicant has not alleged that either device or process claims were improperly classified. Nor has applicant alleged that the classifications set forth are not separate classifications. Thus, requirement 2 of MPEP&803 is met. For these reasons set forth above, the restriction requirement is proper.

The requirement is still deemed proper and is therefore made FINAL.

***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d).

***Information Disclosure Statement***

The information disclosure statement filed 10/6/04 has been considered.

***Oath/Declaration***

Oath/Declaration filed on 10/6/04 has been considered.

***Specification***

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

***Arrangement of the Specification***

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.

- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-7, 9-11 are rejected under 35 U.S.C. 102(a/e) as being anticipated by Ding (U.S. Patent No. 2004/0061207).

Referring to figure 4a-4g, Ding teaches a process of fabricating a microstructure having a vacuum cavity (abstract, para. 1), comprising the following steps:

- a) Producing, in the thickness of a first silicon wafer (150), a porous silicon region (136/140) (para. 52, fig. 4D, a getter gas absorber layer, see para. 4) intended to format least a part of one wall of the cavity and capable of absorbing residual gases in the cavity; and
- b) Joining the first silicon wafer (150) to a second wafer (160), so as to produce the cavity (Para. 53, fig. 4F)

Regarding to claim 2, wherein step a) furthermore includes a step of impregnating the porous silicon region with another material (para. 15) that can also absorb residual gases in the cavity.

Regarding to claim 4, wherein prior to step b), the process includes a step of carrying out a physico-chemical preparation of the surfaces of the wafers used in step b) (see paragraph# 52).

Regarding to claim 5, wherein prior to step b), the process includes a step of outgassing the wafers used in step b) (see paragraph# 53).

Regarding to claim 6, wherein the joining operation of step b) is carried out under vacuum (see paragraph# 53).

Regarding to claim 7, wherein the joining operation is carried out by bonding at ambient temperature (see paragraph# 53).

Regarding to claim 9, wherein the other material that can also absorb the residual gases in the cavity consists of titanium (see paragraph# 15).

Regarding to claim 10, wherein the second wafer and/or the intermediate wafer are made of silicon or glass (see abstract, para# 18).

Regarding to claim 11, wherein the process is applied collectively to several micro structures (see para# 16, abstract).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ding (U.S. Patent No. 2004/0061207) as applied to claims 1-2, 4-7, 9-11 above in view of Wood (U.S. Patent No. 5,861,545).

Ding teaches a process of fabricating a microstructure having a vacuum cavity (abstract, Para. 1) by bonding two wafers at the temperature greater than 280°C (see para.# 24). However, the reference does not teach the cavity has a predetermined height, the joining operation of step b) is carried out by means of an intermediate wafer whose thickness contributes to the height of the cavity and the specific annealing temperature, at between 400 and 1000.degree. C., the microstructure obtained after step b) so as to strengthen the bond.

Wood teaches in figure 3, forming a first wafer (83), second wafer (87), and the intermediate wafer (called spacer, 86).

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would form an intermediate wafer between the upper and the

lower wafer in process of Ding as taught by Wood because intermediate wafer would help to join the upper wafer to the lower wafer and as well as to define the thickness of the cavity between the wafer.

It would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made to optimize the annealing temperature, since it has been held that where the general conditions of a claim are disclosed in the prior art (i.e.- the annealing temperature), discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

The specification contains no disclosure of either the critical nature of the claimed arrangement (i.e.- wherein annealing temperature, at between 400 and 1000°C) or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen limitations or upon another variable recited in a claim, the applicant must show that the chosen limitations are critical. *In re Woodruff*, 919 F.2d 1575, 1578 (FED. Cir. 1990).

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would anneal the wafer to a specific temperature range in process of Ding because annealing process would strengthen the bond between the wafers.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on (571) 272-1702. The fax phone number for this Group is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairdirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business center (EBC) at 866-217-9197 (toll-free).



Thanh Nguyen  
Patent Examiner  
Patent Examining Group 2800

TTN